the shipment unacceptable, regardless of whether the beetle were eating the grain or the mould, and even if it were a completely accidental occurrence by a beetle nothing to do with stored grain.

Despite being widespread, these beetles are only rarely met with 'in the field' by the coleopterist. They seem to have no natural habitat (at least in Britain), but they must move around from barn to barn in order to have become so prevalent.

Many species have been associated with man-made stores of food for so long that their original habitat in the wild is completely masked by their ubiquitous occurrence. The earliest known grain planting was 9000 BC in Syria, and the Egyptian tombs of 2500 BC contained the tenebrionid *Tribolium castaneum* (Herbst). When Tutankhamun's tomb was discovered, six species of stored product beetles were discovered in it. This has led people to suggest that many stored products species originated in the Middle East, and in fact some have been recorded there feeding on acorns.

The physical structure of some species offers clues as to their natural origins. *Cryptolestes* is a flattened beetle, and others of the genus occur under bark. The biscuit beetle *Stegobium paniceum* (L.) is closely related to the anobiid woodworm beetles. Others are also related to wood-borers, for example the tobacco beetle, *Lasioderma serricorne* (F.), is also an anobiid and *Rhyzopertha dominica* (F.) is a bostrichid.

Several techniques are available to trap and monitor the occurrence of beetles in grain stores, and Dr Muggleton showed various pieces of apparatus ranging in complexity from plastic beer 'mug' pit-fall traps and bait bags full of nuts to cylindrical probe traps and the conical 'PC' traps which utilize the beetles' propensity to crawl through small holes.

Most stored product beetles can be easily reared in the home laboratory and Dr Muggleton suggested that it is still possible for amateur entomologists to make valuable contributions to the study of these insects.

SHORT COMMUNICATIONS

***Trinodes hirtus* (F.) (Coleoptera: Dermestidae) and *Tetratoma desmaresti* Lat. (Tetratomidae) new to Gloucestershire.**—The discovery of two nationally rare deadwood beetles in one year is a significant event for the reasonably well-recorded county of Gloucestershire. Neither *Trinodes hirtus* nor *Tetratoma desmaresti* are listed in Atty (1983), nor have they been reported subsequently.

Three *T. desmaresti* were tapped from the lower dead branches of a mature oak tree in the Short Wood section of the Crickley Hill Country Park (SO 934164), 6.x.1991, and one further specimen was found beneath dry loose bark on a similar dead lower bough on another oak, 10.xi.1991. Other beetles found at this locality include *Scolytus intricatus* (Ratz.), *Stenagostus rhombeus* (Ol.), *Bitoma crenata* (F.), *Pseudotriphyllus suturalis* (F.), *Phymatodes testaceus* (L.), *Orchesia micans* (Panz.), *Dacne rufifrons* (F.), and *Tetratoma fungorum* F. Short Wood consists of an area of rough pasture with scattered open-grown oaks, with a few ash, beech and hawthorn, and appears to have been formed by the opening up for grazing of an ancient semi-natural woodland. Carter (1986) reported further interesting deadwood beetles from this site in 1985, and the discoveries reported here add further weight to the importance of deadwood conservation measures in this country park.

Larvae of *T. hirtus* were found in plenty beneath dry loose bark on the trunks of a group of massive old oaks near Forthampton Court, Tewkesbury (SO 875324),

20.x.1991. The spider-infested cavities beneath the bark also contained larvae of *Ctesias serra* (F.) and *Attagenus pellio* (L.), as well as an adult *Ptinus* sp. The history of this site is unclear, but the appearance of the old oaks suggests an old deer park.

My thanks to John Gorrod, Warden at Crickley Hill, for his encouragement to investigate the deadwood fauna of Short Wood.—K. N. A. Alexander, 22 Cecily Hill, Cirencester, Gloucestershire GL7 2EF.

References

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Figure 1. The mantid *Tenodora sinensis* in the process of egg-laying.

Oviposition and hatching in the mantid *Tenodora sinensis*.—While rearing large numbers of the mantid *Tenodora sinensis* for a research project, the opportunity was taken of photographing some of its activites. Figure 1 shows a female about half-way through the process of oviposition and the making of the ootheca. This she does by producing the froth, which later hardens, and swirling it around with her abdomen. From time to time she stops this activity and carefully inserts her ovipositor into the centre and is obviously then depositing a layer of eggs. In all cases observed the entire process, which lasts about an hour, took place 'upside-down' with the ootheca hanging from the twig to which it is attached and the mantid facing downwards.

When the nymphs hatch it appears that the last to be laid hatch fractionally before the first, which are of course at the 'bottom' of the ootheca and as they hatch they appear to be in a tangled pile clinging to each other, the last to hatch clambering over those just emerged. This is shown in Plate IV, Figure 2. They gradually disentangle themselves and one can be seen to the left in the figure, clear of its companions and making its way upwards; others fall off onto the foliage below, or onto the ground.—Brian O. C. Gardiner, 2, Highfield Avenue, Cambridge CB4 2AL.

Courtship display of a Central American tree cricket.—While visiting Costa Rica, Central America, in September 1991, I frequently came across a large brown tree cricket (*Oecanthus/Paroecanthus* sp.?, family Grillidae) under the bark of trees and palings and indoors in wardrobes and cupboards. At night it was common crawling on tree trunks (Figure 1) and on one occasion I was able to watch what I assume was part of its courtship behaviour.

A pair of crickets circled each other 10 cm apart (about the length of the antennae). First one, then the other would make a sidling movement. What I took to be the